

## **Apparatus and Method for Supporting a Firearm**

### **TECHNICAL FIELD OF THE INVENTION**

This invention generally relates to firearm accessories and, more particularly, to a  
5 portable gun rest.

### **DESCRIPTION OF THE RELATED ART**

The use of supports and rests of various kinds in order to aid the accurate shooting  
of firearms is well known in the prior art. Gun rest have been used since the invention of  
10 firearms. Buffalo hunters in the American West are known to have used bi-pods made of  
crossed sticks tied together upon which to rest their rifles. It is therefore well known that  
the use of a supporting device or rest to give stability to a firearm can substantially  
improve accuracy.

One general type of firearm supports are those which are used in shooting from  
15 fixed positions and commonly referred to as a category of "bench rests". These devices  
are primarily used for target range shooting from a fixed position and are designed and  
use primarily for testing and sighting in firearms rather than for hunting. These firearm  
rests are simply are too large and unwieldy for field use. Examples of this type of rest are  
exemplified by U.S. Patent No. 6,526,687.

20 Another group of devices can be generally described as bi-pods, tri-pods, and  
mono-pods. Some of these devices are affixed permanently to the firearm, while others  
are removable. These devices include a gun support mounted at the top of the mono-pod  
or at the junction of the two or three legs forming the bi-pod or tri-pod. The leg or legs  
are integral to the design of the item. A significant limitation of these designs is that the  
elevation of the firearm in a shooting position is dictated by the length of the integral  
25 vertical members; in other words, the vertical height of the firing position cannot exceed  
the vertical length of the supporting member, nor can it be lower than permitted by the

length of the legs. In the case of bi-pods or tri-pods with fixed leg lengths, the lower elevation is limited by the fact that the height is lowered by extending the legs farther outward. As the legs are extended outward, they ultimately reach a point of instability which point is the limit of lower elevation.

5       In order to overcome the shortcoming with respect to elevation, a number of bi-pods and mono-pods have been developed that allow the elevation to be increased and decreased by means of telescoping or nesting tubes which may be extended or retracted to substantial degree. Examples of this type of rest are exemplified by U.S. Patent Nos. 6,574,899; 6,505,429 and 3,225,656. Although these designs represent an improvement  
10 over the fixed leg devices, they still suffer from certain limitations. First, the upper elevation is still limited by the total achievable length of the vertical members. Second, the lower elevation is limited by the length of the longest telescoped section. Third, the vertical members are integral to the rest. If a vertical member is broken or damaged, the whole unit is rendered useless. Further, these units are not sufficiently strong to be used  
15 as a walking stick, which would be highly desirable.

There are a number of devices that combine the benefits of a gun rest with a walking stick. U.S. Patent No. 5,438,786 describes a pistol rest mounted at the top of a rigid telescoping support rod. However, this device is not suitable for longer firearms. Further the extent of vertical adjustment is fixed by the total length of the telescoping  
20 parts of the rod, and the rod itself is integral to the device.

U.S. Patent No. 4,481,964 describes a walking stick and shooting rest that includes an L-shaped cane with a rectangular cross-section and a series of serrations which is placed within a rectangular opening in a shorter, elongated member that may be moved vertically up and down the cane. A gun is rested on the shorter member and the downward weight shift causes the two members to become firmly engaged. This device suffers from two key limitations. First, the upper elevation of the elongated rest is limited by the length of the cane and the rest cannot be used without the use of the cane, which is  
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particularly designed for it. Second, the rest is not firmly attached to the vertical member but instead is simply forced into a fixed position by the weight applied to the rest.

Another example of such a device is described in U.S. Patent Application Publication No. 2002/0178637. This device is a gun rest consisting primarily of a flat plate with a tear drop shaped hole at one end through a shaft may be inserted. A weight placed upon the plate latches it against the shaft. A firearm may be placed in an angle formed by a bend in the plate distal to the shaft. This device would accommodate a shaft of variable length and material and the shaft, size, and material would be selected by the user. However, the plate that serves as the gun rest is not firmly affixed at any time to the shaft, but, instead, depends upon the weight of the gun to lock it to the shaft. When the gun is removed, the support readily slides up and down on the shaft. In addition, although the support will accept shafts of various diameters, the smaller the diameter, the greater the downward angle of the rest, which may cause an awkward and unstable seating for the firearm.

Therefore, providing a gun rest that works with various shafts, including walking sticks, still provides a stable support, and may be removably fixed in a position, would be highly desirable.

The present invention is directed to overcoming one or more of the problems set forth above.

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## SUMMARY OF THE INVENTION

An aspect of the present invention is to provide a pocket-sized gun rest that may be easily carried and works with shafts of varying diameters and lengths, including walking sticks.

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Another aspect of the present invention is to provide a gun rest that provides a stable and generally horizontal support for a firearm.

Yet another aspect of the present invention is to provide a gun rest that may be positively fixed in a position yet also readily adjusted to various heights along the entire length of a shaft.

In accordance with the one or more of the above aspects of the invention, there is  
5 provided a firearm supporting apparatus suitable for use with shafts of varying diameters and lengths that includes an elongated support member having a clamping surface and a firearm supporting surface; a collar connected with the elongated support member; and an adjustable mechanism connecting the collar with the elongated support member and adjusting the position of the collar relative to the clamping surface of the support  
10 member, the collar and clamping surface securing the support member to the shaft. In one embodiment the adjustable mechanism includes an elongated threaded member connected with the collar and the elongated support member and a fastening device associated with the threaded member. In an alternate embodiment, the adjustable mechanism includes an adjustable clamp connected with the elongated support member  
15 and integrated with the collar, which is a flexible band.

These aspects are merely illustrative of the innumerable aspects associated with the present invention and should not be deemed as limiting in any manner. These and other aspects, features and advantages of the present invention will become apparent from the following detailed description when taken in conjunction with the referenced  
20 drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Reference is now made more particularly to the drawings, which illustrate the best presently known mode of carrying out the invention and wherein similar reference  
25 characters indicate the same parts throughout the views.

Fig. 1 is a schematic view of a firearm supporting apparatus according to one embodiment of the present invention in use on a shaft by a shooter in a kneeling position.

Fig. 2 is a side view of the firearm supporting apparatus of Fig. 1.

Fig. 3 is an exploded view of a firearm supporting apparatus according to another embodiment.

Fig. 4 is a top view of a firearm supporting apparatus.

5 Fig. 5 is a top, partial cut-away, view of a firearm supporting apparatus according to an alternate embodiment.

Fig. 6 is a schematic view of a firearm supporting apparatus in use by a shooter in a standing position.

10 Fig. 7 is a schematic view of a firearm supporting apparatus in use by a shooter in a prone position.

#### DETAILED DESCRIPTION

In the following detailed description numerous specific details are set forth in order to provide a thorough understanding of the invention. However, it will be understood by those skilled in the art that the present invention may be practiced without these specific details. For example, the invention is not limited in scope to the particular type of industry application depicted in the figures. In other instances, well-known methods, procedures, and components have not been described in detail so as not to obscure the present invention.

20 Figs. 1-7 illustrate a gun rest 10 supported by a shaft 12. The shaft 12 may be of any length. The diameter of the shaft 12 is limited only by the inside diameter of the collar 18 (discussed in more detail below). Advantageously, the shaft 12 may be a walking stick that the user already possesses or may be a tree limb of suitable length and thickness that is readily found in the field. Alternatives for the shaft 12, also include wood, metal, plastic or fiberglass poles, although a relatively narrow, elongated item made of any suitably rigid material will suffice. Due to the gun rest's ability to be utilized with shafts 12 of any length, almost any shooting position can be accommodated,

including sitting, kneeling, and standing, regardless of the height or age of the user. Figs. 1, 6 and 7 illustrate a gun rest 10 in use by a shooter in kneeling, standing and prone positions, respectively. While the shaft shown in these figures is truncated for space purposes, it should be noted that the very same shaft could be used in all three shooting 5 positions, which presents a significant advantage for the gun rest 10.

The gun rest 10 is primarily composed of a support 14, a collar 20, a threaded member 16 and a fastening/adjustment device 18. The support 14 is provided with a longitudinal through hole 22 extending entirely through the length of the support 14. One end of the support 14 is provided with a rectangular collar slot 26. The collar slot 26 also accommodates the collar 20 when the gun rest 10 is assembled. The collar slot 26 also separates upper 28 and lower 30 support arms. The support 14 may be constructed of practically any rigid material, including wood, plastic, metal, or composites. However, in a preferred embodiment, the support is constructed of a relatively lightweight material, such as wood, plastic or composite, to enhance its portability and ease of use.  
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In a preferred embodiment, the collar 20 itself is constructed of a relatively rigid material, such as PVC, plastic, metal, or other rigid materials. However, it is acceptable for the collar 20 to be made of more flexible materials, such as thinner plastic or metal bands, leather, or fabric. The collar 20 is provided with a hole 36 in one side. In a preferred embodiment, the height of the collar 20 on the side having the hole 36 is somewhat greater than the collar's height on the side opposite the hole 36. This variation 20 in height, shown in Fig. 3, eases the task of inserting the threaded member 16 into the hole 36, as described below. In another embodiment, a plurality of collars 20 with varying diameters is provided. This allows the gun rest 10 to be used with an even larger number of shafts 12 of different diameters.

25. The gun rest is assembled by inserting the threaded member 16, threaded end first, through the collar hole 36 and then through the longitudinal through hole 22 in the support 14. The collar hole 36 should be large enough to allow the body of the threaded

member 16, which may be a bolt, screw or other similar elongated threaded device, to freely pass yet small enough to prevent the head of the threaded member 16 from passing. The fastening/adjustment device 18, which may take the form of a wing nut, threaded knob, or a similar threaded object, is then screwed onto the threaded end of the threaded member 16 to secure the assembly.

Once the gun rest 10 is assembled it is ready to be secured to the shaft 12 at any point along the shaft's height. The fastening/adjustment device 18 should be unscrewed slightly to allow the collar 20 to be moved slightly away from the support, thereby exposing at least the majority of the inside diameter of the collar 20. This minimizes the interference of the upper 28 and lower 30 support arms with the shaft 12 as the collar 20 is slipped over the shaft 12. Once the collar 20 is slipped onto the shaft 12, a user may determine a desirable height for the gun rest 10 along any part of the length of the shaft 12. Once a desirable height is found, the user secures the gun rest at that height by screwing the fastening/adjusting device 18 further onto the bolt 16. This action draws the collar back into the collar slot 26, allowing the upper 28 and lower 30 support arms to overlap the edge of the collar 20 and eventually engage the shaft 12. As the fastening/adjusting device 18 is tightened, the shaft 12 is gradually engaged by the far side of the collar 20 on one side of the shaft 12 and by the upper 28 and lower 30 support arms on the opposite side of the shaft 12, effectively "pinching" the shaft between these points and thereby securing the gun rest 10 onto the shaft 12 at this position. In order to remove or adjust the gun rest 10, the user must simply loosen the fastening/adjusting device 18, thereby disengaging the collar 20 and upper 28 and lower 30 support arms from the shaft 12 slightly.

In an alternate embodiment, the ends of the upper 28 and lower 30 support arms are provided with concave clamping surfaces 46 in order to increase the actual contact area between the rounded side of the shaft 12 and the support arms, thereby providing a more secure clamping action between the support and the shaft. In addition, the clamping

surfaces 46 may be provided with flexible pads, such as rubber, plastic, neoprene, leather, or the like, to minimize any marring of the shaft surface. This is particularly desirable if a user utilizes a favorite walking stick as the shaft 12.

In a preferred embodiment, the support 14 is provided with a contoured surface 38 forming a concave cradle to positively support a firearm or a user's hand. In a particularly preferred embodiment, at least the contoured surface 38 is covered with a flexible material 40, such as cloth, low density plastic, neoprene, rubber, or leather. This covering prevents the support 14 from scratching firearms and also reduces any noise made by the gun rest 10 if it is dropped, which is essential when hunting. In addition, if the flexible material 40 used is of a non-skid design, such as neoprene or rubber, for example, slippage of firearms during firing is minimized. This covering may be extended to cover the entire support 14. The support 14 and/or flexible material covering 40 may also be provided with a suitable coloring, *i.e.*, camouflage print, to allow the gun rest 10 to better blend in with a user's other hunting gear and clothing.

Fig. 5 illustrates an alternate embodiment of the gun rest 10. The support 14 is provided with a transverse hole 32 instead of a collar cutout and longitudinal through hole. An adjustable clamp 34, *e.g.*, a standard hose clamp with a flexible metal band 42 and threaded tightening mechanism 44, is installed in the transverse hole 32. Prior to installation of the gun rest 10 on the shaft 12, the adjustable clamp 34 is loosened to its largest diameter in order to allow the clamp 34 to fit over the shaft 12. Once the user has found a desirable height for the gun rest 10, the clamp 34 is tightened to secure the shaft 12 tightly between the flexible band 42 and a clamping surface 40, thereby fixing the gun rest 10 in position on the shaft 12. Similarly to the upper and lower support arms of the first embodiment, the clamping surface 40 may be concave. To remove or adjust the gun rest 10, the clamp 34 is simply loosened.

Other objects, features and advantages of the present invention will be apparent to those skilled in the art. While preferred embodiments of the present invention have been

illustrated and described, this has been by way of illustration and the invention should not be limited.